Exhibit A

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Jay C. Pershing *et al.*	Group Art Unit: 1638 Examiner: Kubelik, Anne R.
Serial No.: 10/780,151	Confirmation No. 1272
Filed: February 17, 2004	Attorney Docket No.: MONS:155US
For: COMPOSITIONS AND METHODS FOR DEPLOYING A TRANSGENIC REFUGE AS A SEED BLEND	

DECLARATION OF GRAHAM HEAD, PH.D. UNDER 37 C.F.R. § 1.132

I, Graham Head, hereby declare as follows:

1. I have been employed since May 1, 1997 by Monsanto Company, the parent company of Monsanto Technology LLC, currently with the title of Global IRM Strategy Lead, and am familiar with the contents of the patent application identified above.

2. I have a Ph.D. in ecology from Princeton University and a Bachelor of Science degree in biology from Monash University in Australia. I have been conducting research in the area of plant biochemistry, molecular biology and genetics since 1991.

3. I understand that the Patent and Trademark Office Examiner in charge of assessing the patentability of the referenced patent application has rejected the claims as obvious over the disclosure of Cohen *et al.* (August 2000, *International Rice Research Notes*, 25:4-10), English *et al.* (2000, U.S. Patent No. 6,023,013), Narva *et al.* (2000, U.S. Patent No. 6,083,499) and/or Maqbool *et al.* (1999, *Molecular Breeding*, 5:471-480).

4. I am therefore providing the present Declaration to submit information in the form of experimental results demonstrating that the seed blends defined in the claims of this patent application, comprising a transgenic crop seed and a refuge seed, yield results that would have been considered highly surprising and unexpected as of the October, 2000 filing date of the application both in view of the references cited in the Action and the general state of the art at that time.

5. The attached **Table 1** shows European Corn Borer (ECB) damage in seed blend plots versus pure plots of transgenic SMARTSTAX plants or non-Bt control plants (refuge plants with no insecticidal transgenes). SMARTSTAX plants comprise multiple insecticidal transgenes, and including at least one transgene targeting a lepidopteran insect. The Table shows stalk tunneling measurements in inches by ECB in plants planted in plots of pure SMARTSTAX, pure refuge, and seed blends.

6. For instance, the second data row shows damage to SMARTSTAX plants that were evaluated in a field plot planted with a 95% SMARTSTAX/5% non-Bt refuge plant blend. The SMARTSTAX plants that were evaluated showed no damage. The fourth data row shows damage to non-Bt plants that were evaluated in the field plot planted with the 95% SMARTSTAX/5% non-Bt refuge plant blend. In this case, damage was observed as noted.

7. The third data row in Table 1 shows damage to SMARTSTAX plants that were evaluated in the field plot planted with a 90% SMARTSTAX/10% non-Bt refuge plant blend, indicating that the SMARTSTAX plants evaluated showed no damage. The fifth data row shows damage to non-Bt plants that were evaluated in the field plot planted with the 90% SMARTSTAX/ 10% non-Bt refuge plant blend. Damage was observed as noted.

8. The first and the last data rows show damage to plants in a SMARTSTAX only field (100% SMARTSTAX) and in a refuge only field (100% non-Bt with no insecticidal transgenes), respectively.

9. The data demonstrate that non-Bt refuge plants in a seed blend are attacked less and damaged less than non-Bt plants in a pure refuge plot. As refuge requirements have previously required planting a pure refuge plot adjacent to or within some limited distance from the transgenic Bt crop plot, which results in insect attack and significant damage to plants in the refuge plot, the refuge plot produces a lower yield and reduces a farmer's return on investment. Such yield decrease has led to reluctance from farmers to comply with the refuge requirements. The present results, however, demonstrate less attack and damage to refuge plants in a seed blend leading to increased yield relative to the yield that is observed when the refuge is planted in a separate field.

10. A seed blend therefore provides an insect resistance management (IRM) approach with significant benefits in terms of efficacy and yield protection. These results will not only allow for less insecticide use, and/or increased yields, but should increase farmers' willingness to plant refuge seed resulting in more effective resistance management overall.

11. I am familiar with the state of the art in the field of IRM as of October, 2000, and the references cited by the Examiner. In my opinion a person of ordinary skill in the field of IRM would have considered the results presented in Table 1, and the fact and extent of reduced damage to blended refuge plants relative to block-planted non-Bt refuge plants in particular, to be surprising and unexpected.

12. I hereby declare that all statements made of my own knowledge are true and all statements made on information are believed to be true and further that the statements were made with the knowledge that willful false statements and the like so made are punishable by fine or

imprisonment or both under §1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this application or any patent issued thereon.

Date: 3/4/2011

Graham Head, Ph.D.

TABLE 1

Stalk tunneling (inches) by ECB in SMARTSTAX, non-Bt refuge, and seed blend plots by individual components across sites.

Substance	% Plants with tunnels	Average tunneling per plant	SE
SmartStax	0	0.0	0.00
95% SmartStax[1]	0	0.0	0.00
90% SmartStax[2]	0	0.0	0.00
5% non-Bt[3]	47	0.8	0.25
10% non-Bt[4]	56	1.3	0.45
non-Bt	65	1.8	0.23

[1]SmartStax plants within a 95% SmartStax/5% non-Bt seed mix
[2]SmartStax plants within a 90% SmartStax/10% non-Bt seed mix
[3]Non-Bt plants within a 95% SmartStax/5% non-Bt seed mix
[4]Non-Bt plants within a 90% SmartStax/10% non-Bt seed mix